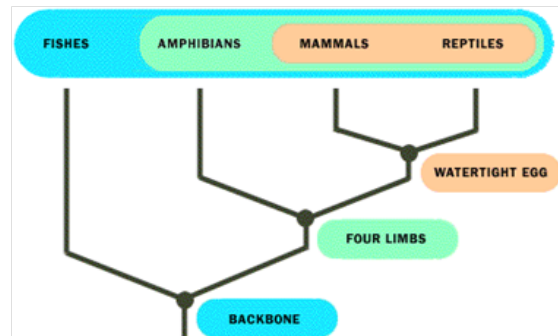


http://www.youtube.com/watch?v=46L_2R11k3k

Cladogram

- Evolutionary relationship of a group of organisms
- Each clad (group) share something in common
- Ancestral traits are the oldest
- Derived traits evolved later



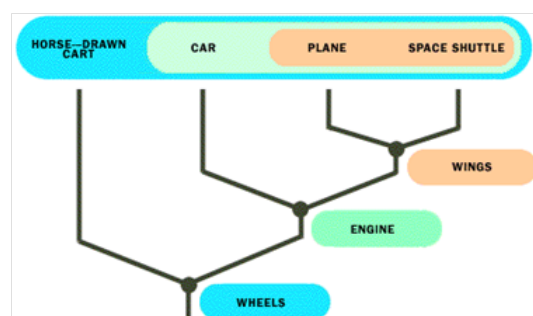
1

<http://ccl.northwestern.edu/simevolution/obonu/cladograms/Open-This-File.swf>

Oct 13-5:36 PM

Cladogram for Transportation

- Wheels are the most ancestral
- Wings are the most recently derived



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Construct a Cladogram



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Gorilla



- Four limbs
- Fur
- Lost tail

4

4

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Tiger



- Four limbs
- Fur
- Tail

5

5

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Lizard



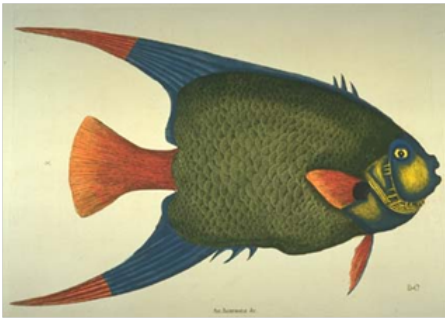
- Four limbs
- Tail

6

6

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Fish



- Tail

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Chimpanzee



- Four limbs
- Fur
- Lost tail

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Clad With 4 Limbs



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Clad With Fur



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Clad With No Tail

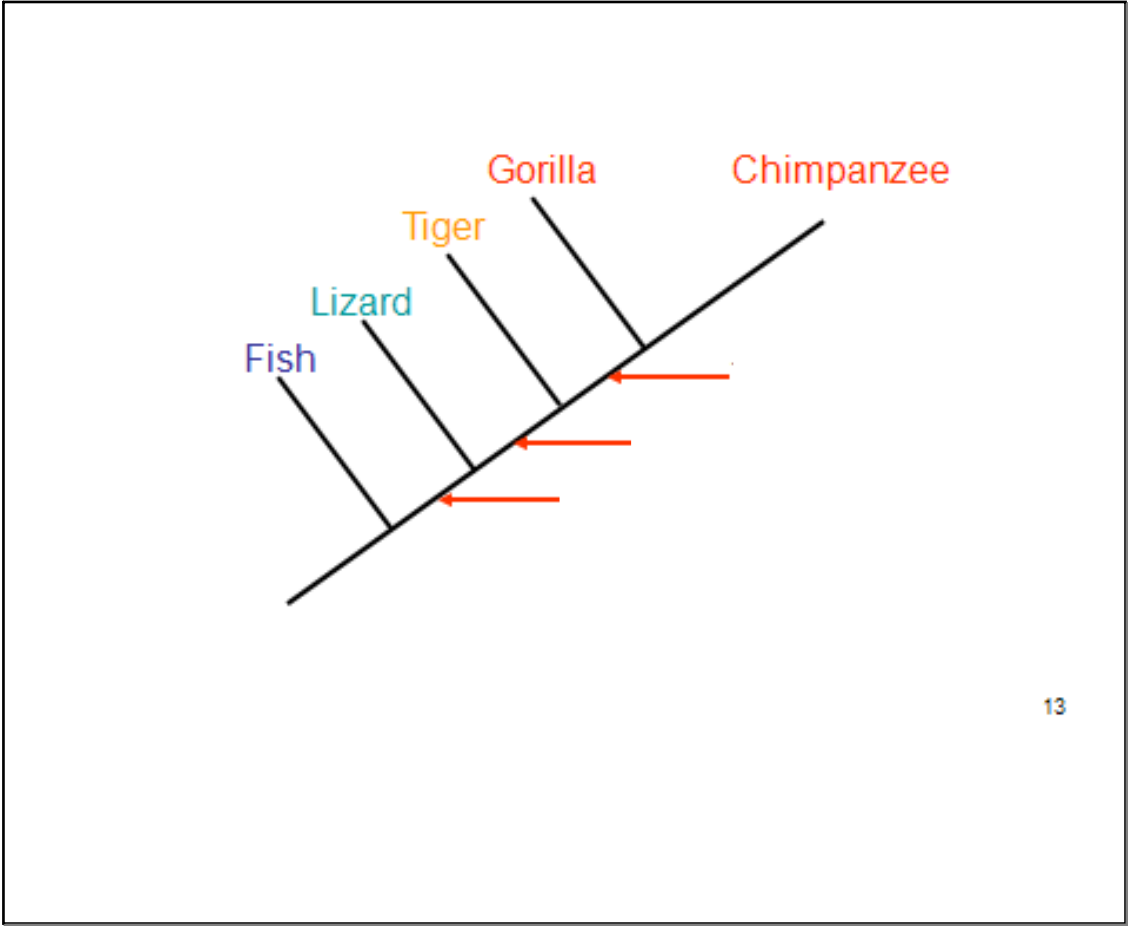


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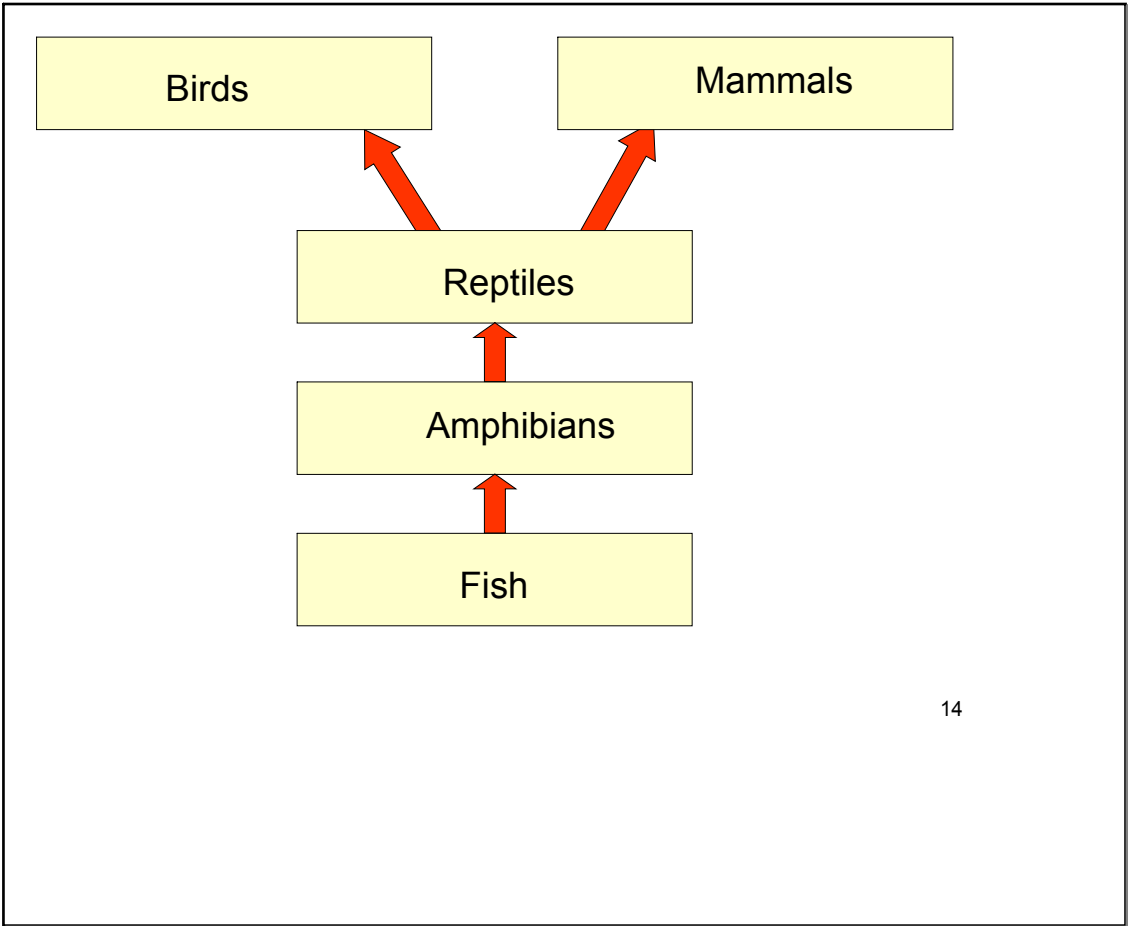
Characteristics for Constructing Cladogram

- Tail is the most ancestral
- Four limbs is the oldest derived trait
- Fur is a later derived trait
- Loss of tail is the most recently derived trait

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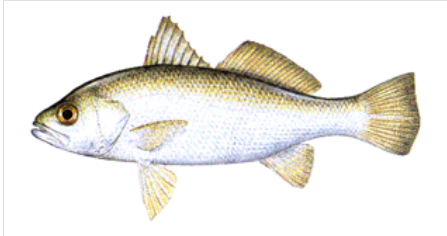


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Oct 13-5:36 PM

Fish



- Fins
- Vertebrae
- Simple egg

15

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Amphibian



- 4 limbs
- Vertebrae
- Simple egg

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Reptile



- 4 limbs
- Vertebrae
- Amniotic egg

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Bird



- 4 limbs
- Vertebrae
- Amniotic egg
- Feathers
- Endothermic

18

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Mammal



- 4 limbs
- Vertebrae
- Amniotic egg
- Fur or hair
- Endothermic

19

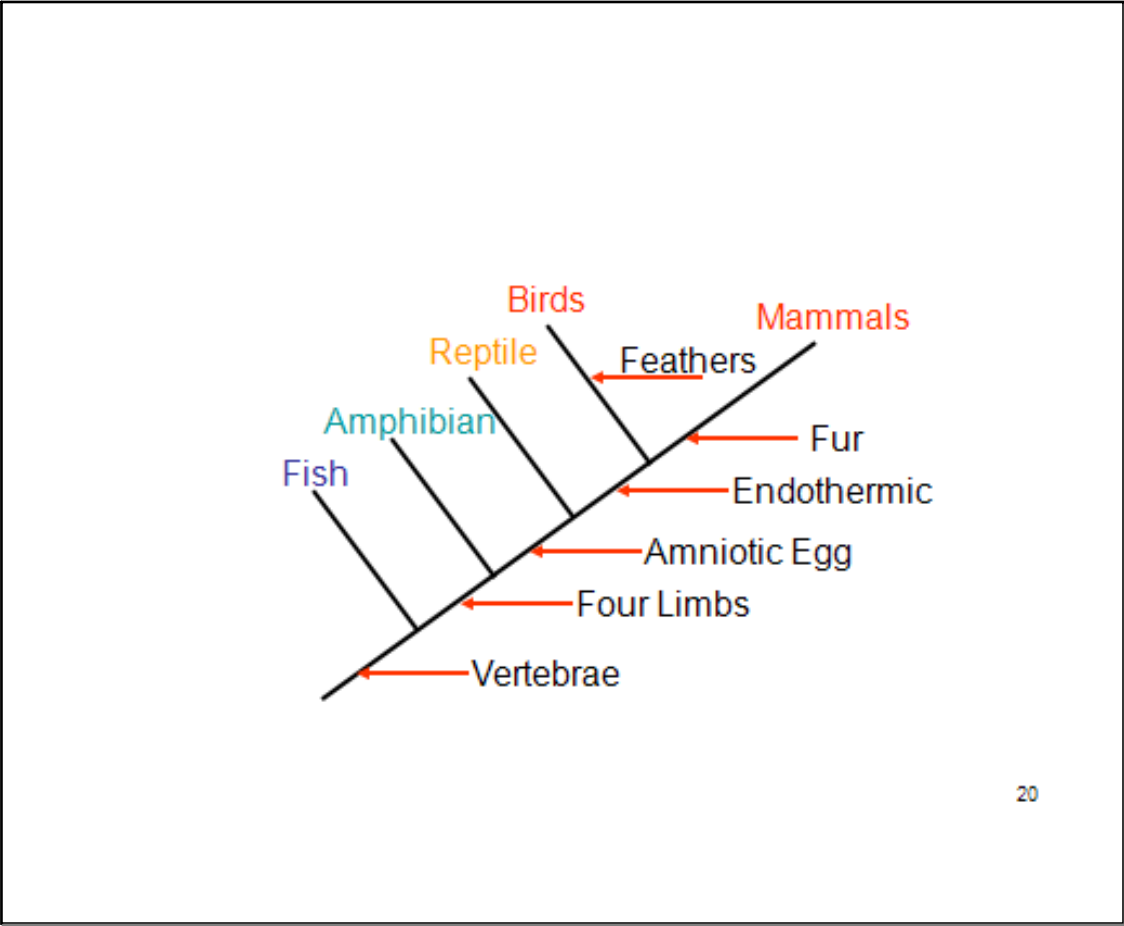
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1 if it has the trait

0 if it doesn't have the trait

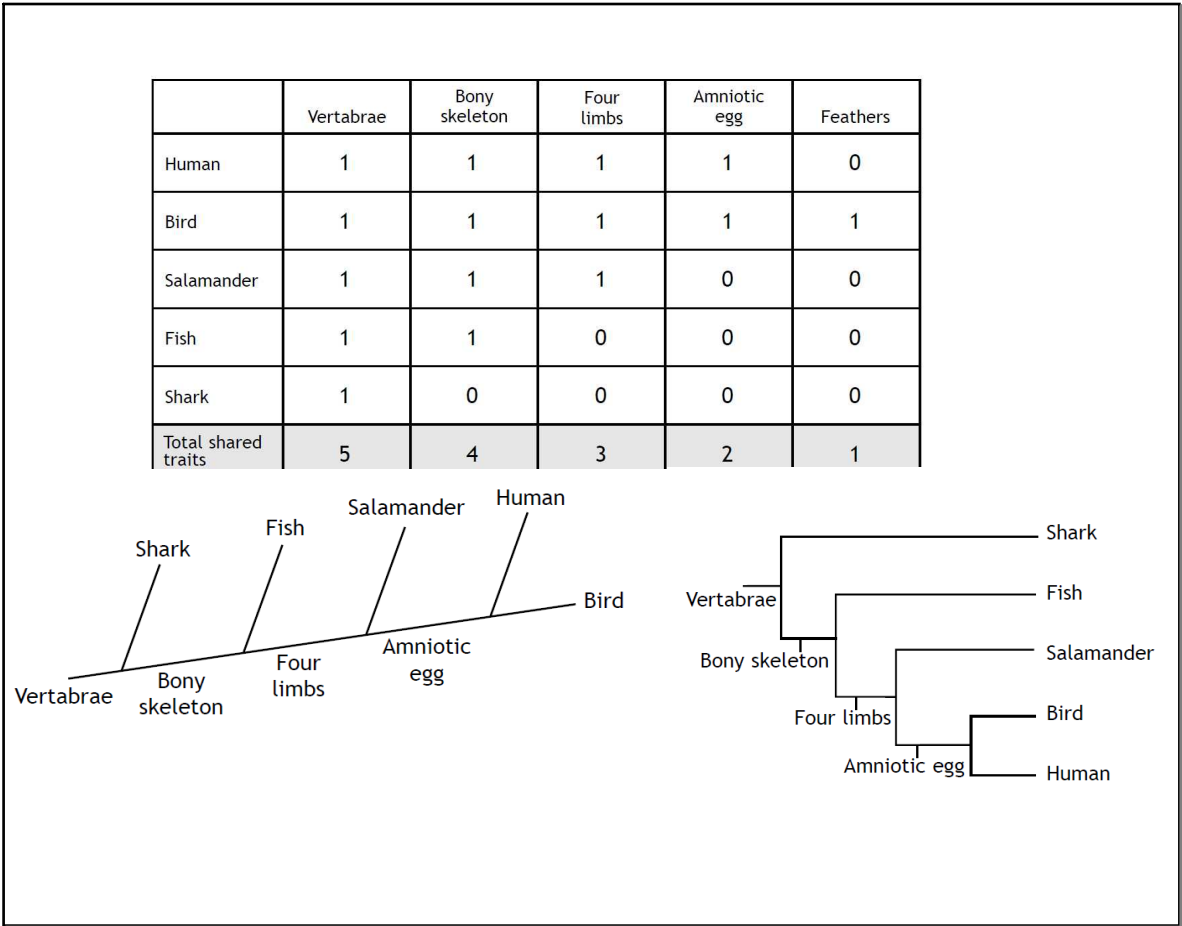
	Vertebrae	4 limbs	Amniotic egg	Endothermic	Feathers	Fur
Fish	1	0				
Amphibian						
Reptile						
Birds						
Mammals						
Total shared traits						

Oct 13-9:03 PM



20

Oct 13-5:39 PM



Oct 17-8:24 PM